

PATENT

Serial No. 10/512,119

Amendment in Reply to Office Action of April 9, 2008

IN THE ABSTRACT

Please delete the current Abstract in its entirety and substitute therefor the enclosed New Abstract.

NEW ABSTRACT

A starting-process controller for starting a piezomotor, having a voltage-controlled oscillator, a power output stage, and a resonant converter. The oscillator generates the control signals required for the power output stage and the resonance converter converts the stepped output voltage from the power output stage into a sinusoidal voltage at the output. The resonance converter drives the piezomotor with the voltage. The motor current that flows when the piezomotor is driven is measured and compared with the phase of the drive voltage in a phase comparator. The comparison output signal is a measure of the phase difference at the time between current and voltage. A phase-locked loop filter smoothes the phase-difference signal for controlling the oscillator. The controller includes a start-assisting circuit element that fixes the output voltage from the phase-locked loop filter at start-up and thus applies a constant voltage to the input of the voltage-controlled oscillator.